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CHRONIC WASTING DISEASE (CWD) OF DEER AND ELK

WHAT IS IT?

Chronic wasting disease of mule deer, rocky mountain elk and white-tailed deer is a disease, which many scientists believe may be caused by an infectious protein, termed a prion. It causes fatal damage to the central nervous system. The brain has a microscopic sponge-like appearance and places it in a group of diseases known as transmissible spongiform encephalopathies (TSEs). Scrapie of domestic sheep and goats, bovine spongiform encephalopathy or "Mad Cow Disease" of cattle and transmissible mink encephalopathy of farmed mink are all different types of TSEs in domestic and captive reared animals. Creutzfeldt-Jakob disease, a human TSE, occurs throughout the world with a frequency of approximately 1 case in 1 million people each year. Another human TSE is variant Creutzfeldt-Jakob disease, which causes approximately 10-25 human deaths each year. This disease is associated with a large-scale outbreak of mad cow disease in cattle herds in Great Britain. The people consumed some of the estimated 200,000 infected cattle since 1986. This has resulted in 131 human deaths (122 from UK) from variant Creutzfeldt-Jakob disease as of June 2002.

WHAT DOES IT LOOK LIKE?

The clinical signs are not unique to this disease, but loss of body weight, even as the deer or elk continues to eat is typical. The animals may walk in the same short path, repeatedly. They may be slightly unsteady standing with legs separated wider than normal. Some may have subtle head tremors and are found near streams or ponds. They may have periods when they appear sleepy or unresponsive or may carry their head down with their ears lowered. Increased salivation, drinking and urination may also occur. Usually, months to years pass from when the animal is infected to when it shows these signs and they have not been seen in deer younger than 17 months. Once the signs develop they usually last for months, but occasionally they end in death within just a few days.

HOW IS IT SPREAD?

CWD can be transmitted among adult deer and the prions have been found in the brain, eyes, spinal cord, spleen, tonsils and lymph nodes. This pattern of transmission and association of prions with lymph tissue in the mouth and intestinal tract has led to the hypothesis that the CWD agent may find its way through saliva, feces and urine onto grasses and other food. Deer eating contaminated food may contract the disease. It is also speculated that affected organs of deer dying in the wild may be fed on by scavengers, which in turn may disseminate the CWD agent in their feces. The prion is very resistant to traditional disinfectants and persists a long time in the environment. Healthy deer restored to cleaned, disinfected pens developed CWD. The highest prevalence of CWD in free-ranging deer (15%) has been higher than in elk (1%) in Colorado. Over half the 154 deer in a captive herd in Nebraska tested positive for CWD.

The rate of infection in free-ranging deer surrounding the captive herd's enclosure steadily declined with distance. The captive animals were probably the source of infection for the wild deer. It is not known if urine from captive infected deer sold to commercial outlets and used as lures could be a means of disseminating the CWD agent.

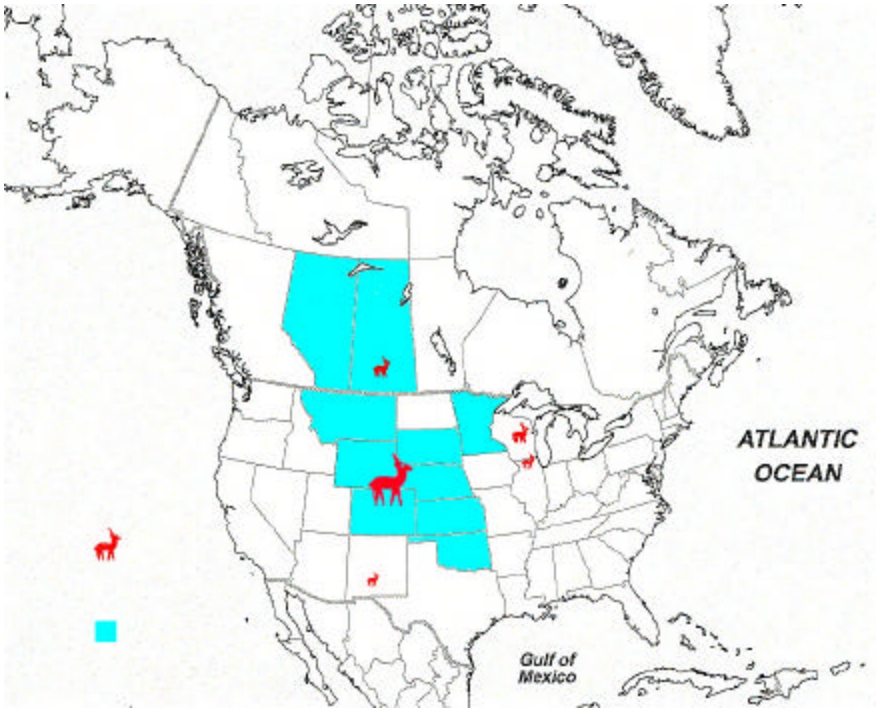
HOW DO WE TEST FOR IT?

Currently there is no reliable test for this disease in live animals. Microscopic examination of the brain of deer, which die or are killed, reveals the sponge-like changes typical of CWD. Early in the disease, before the spongy changes of the brain occur, special chemical stains for the CWD prion will reveal its presence. These stains have also been used to demonstrate the CWD prion in biopsy samples of tonsil from live deer, but these tests require anesthetizing the deer and they don't work well on elk. European investigators have developed tests for the mad cow disease agent in dead cows. Research is being performed to see if similar tests could be adapted to CWD in live deer.

WHERE IS IT?

CWD in wild free-ranging deer and elk is known to exist in Colorado, Wyoming, Nebraska, South Dakota, Wisconsin, New Mexico and recently in Illinois. It has also been detected in the Canadian province of Saskatchewan in wild deer. CWD in game farm elk and deer has been found in Colorado, Montana, South Dakota, Oklahoma, Kansas, Nebraska, Minnesota, Alberta and Saskatchewan. CWD infected farmed elk in Korea were traced back to an infected herd in Saskatchewan. The Wisconsin Department of Natural Resources conducted a survey. As of September 2002 CWD was detected in 24 deer. The Wisconsin DNR has proposed to kill as many as 15,000 deer in a 287-square-mile area surrounding the locations of the 18 positive deer to prevent CWD from spreading throughout the state. Elsewhere, the herd will be cut to as few as 10 animals per square mile. New Mexico and Illinois have not proposed a dramatic population reduction remedy.

CHRONIC WASTING DISEASE IN CERVIDS OF NORTH AMERICA



IS IT IN NEW JERSEY?

Five hundred six deer heads, mostly from hunter-killed deer, were collected in a cooperative survey conducted by the NJ Division of Fish and Wildlife, USDA Veterinary Services, and the NJ Department of Agriculture during the 1997-98 hunting seasons. Brain was tested for chronic wasting disease and lymph nodes for bovine tuberculosis. No evidence of either disease was found. The statistical analysis indicates that if TB or CWD was present we are 99% confident it was in less than 1% of the adult deer. Without testing all of the animals in a population it is statistically impossible to say a disease is not there. Because of the sudden appearance of CWD in wild Wisconsin whitetails, the Division proposes to conduct another hunter survey of New Jersey deer for the CWD agent.

WHERE DID IT COME FROM?

CWD has been known by its symptoms in mule deer for more than 30 years and may have been present in free ranging mule deer for more than 40 years. It was first recognized as a spongiform encephalopathy in 1977 and was diagnosed in captive mule deer and black-tailed deer in Wyoming. In 1979 it was diagnosed in captive elk. Also about that time a captive mule deer was diagnosed with CWD in a zoo in Ontario, but the disease did not persist in that location. In 1981 CWD was diagnosed in a free-ranging elk in Colorado and in 1983 the first hunter harvest survey was conducted for CWD. At present, three species of the deer family are known to be naturally susceptible (we don't know about others as they may not have been exposed) to CWD. Cattle and other domestic livestock may be resistant to natural infection. CWD could have been derived from alteration of an existing TSE or the CWD prion could have occurred spontaneously. Its origin may never be known.

CAN HUMANS GET IT?

NO CASES OF HUMAN CREUTZFELDT-JAKOB DISEASE OR THE VARIANT HAS BEEN LINKED TO CWD OF DEER, in-spite of a widely circulated unfounded story in the popular press alleging 3 young hunters diagnosed with CJD had in some way been exposed to CWD. In Colorado over 16 years of monitoring has never found disease in people or cattle living in the CWD infected area. Epidemiologists with the Federal Centers for Disease Control and Prevention have conducted extensive studies of human risk from CWD. They were not able to identify any association between human neurological disease and CWD and concluded the risk of infection with the CWD agent among hunters is extremely small, if it exists at all. Never the less, there are always uncertainties with poorly understood diseases. In areas where the deer are infected, hunters are advised not to eat lymph nodes, spleen, brain, spinal cord and bone out the meat. The World Health Organization recommends deer or elk with evidence of CWD should not be eaten by people or other animals.

HOW CAN IT BE PREVENTED OR CONTROLLED?

The strategy, which makes most sense, is one of surveillance to detect the disease, limit movement of infected animals and slaughter of known infected herds. Twenty-one captive herds of deer and or elk have been identified as infected with the CWD prion in the United States. All but 3 have been depopulated. The USDA Secretary of Agriculture released $12 million in funds in February 2002 to indemnify captive deer and elk herds for depopulation due to CWD. In 1999 the US Animal Health Association asked the USDA for a captive elk and deer herd certification process, which could be used to declare a captive herd free of CWD. While drafts of this process are being reviewed the most reliable protection for New Jersey is to prohibit the import or export of members of the deer family. This is accomplished in part under authority of the Director of the NJ Division of Fish and Wildlife through restriction of permits to possess captive deer. While this safeguard has already been taken, policies on captive herd health surveillance will focus on good record keeping, reporting of unexplained deer or elk deaths, and inspections. Active surveillance through sampling hunter-killed deer and passive surveillance through submissions of sick deer to the Division's Office of Fish and Wildlife Health and Forensics will also comprise the core of the response to the CWD threat to New Jersey. These efforts will be undertaken in cooperation with and assistance from the USDA – APHIS Veterinary Services, Wildlife Services and NJ Department of Agriculture's Division of Animal Health. On May 16, 2002 The U.S. Department of Agriculture and the U.S. Department of the Interior announced the formation of a joint working group on chronic wasting disease (CWD) to ensure a coordinated and cooperative federal approach to assisting the states with CWD response efforts.

HOW CAN THE HUNTERS HELP?

Hunters are asked not to shoot sick or abnormally behaving deer, but note the animal's location and report it to the Division's Office of Fish and Wildlife Health and Forensics at 908-735-6398 or a local Division field office with numbers listed in the Digest as soon as possible. Hunters can cooperate in donating the heads of their deer when asked by a Division Biologist at selected deer check stations.

HOW CAN CAPTIVE DEER OWNERS HELP?

Don't export or import deer in New Jersey until a national herd certification system is approved and the Division lifts the ban on such movement. If you have a deer, elk or other member of the deer family die of natural causes and especially one which is skinny at death, ensure the head is kept cool and immediately notify the NJ Division of Fish and Wildlife at 908-735-6398 so arrangements can be made to collect a portion of the brain for testing for CWD.

For more information on chronic wasting disease, its management and related diseases visit http://www.cwd-info.org.